Sorghum feeds Africa, proves important for U.S. as well

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(PhysOrg.com) -- Sorghum, a main food crop in many African nations and the second most important animal feed crop in the United States, has the potential for expanded food and fuel uses both here and abroad, said a Purdue University agronomist.

Gebisa Ejeta, the 2009 World Food Prize laureate, first focused his genetics research on sorghum because it is a staple of life for hungry people in his home nation of Ethiopia. But, as he found, the world's fifth most important crop also has traits that give it the potential to be used for American biofuels.

"There is a lot of genetic diversity in sorghum associated with traits that would help it to be an economic crop for both feedstock and ethanol production," Ejeta said. "Sorghum is a perennial plant that has been made annual, but I think that perenniality is going to be helpful in producing ethanol. It also produces a lot of biomass, and the stalks produce a lot of sugars."

The current limiting factor in the use of sorghum as a main source for biofuels in the United States is the lack of regional production. While Ejeta estimates as many as 18 million acres have been grown in the United States, it's not yet centralized enough to be used effectively as an ethanol crop.

"In order for it to be a successful ethanol crop, sorghum would have to be associated with a particular region, as it is in the southern U.S.," he

said. "But I think it has potential in the Midwest, as well."

Abroad - mainly in developing countries - Ejeta said sorghum is more than just a feedstock or a biofuels crop - it's the difference between life and death.

"Sorghum really is a true staff of life for people in developing countries, particularly in Asia and India, as well as many places in Africa," he said. "It is a very important crop globally."

Because many developing nations don't have access to pesticides or irrigation systems, Ejeta's genetics research led him to develop sorghum varieties that have natural defenses to some of the most common problems in Africa - drought and Striga, a parasitic weed that causes major yield reductions.

Ejeta said this work benefits not only the developing nations abroad, but also people living right here in America.

"There is a mutuality of benefit," he said. "In the work that's being done, both here and internationally, there has been a knowledge base generated. We bring in the knowledge from overseas and use it in our research to benefit the farmers in this country.

"At the same time, investments that are made in this country and in the developed world, also can generate new technologies that can be taken back to the developing countries where they also can make a difference in people's lives. I think the mutuality of benefit in the work that we do is a very good example of the interconnectedness between societies in the developed world and the concern for the poor in developing countries."

With that in mind, Ejeta is now working on ways to get these new

sorghum varieties widely dispersed in the developing nations that need them most. And his sorghum research has not stopped.

"We have a lot of problems to work on," he said. "There are a lot of constraints in sorghum production, so one of the things I think we need to pay more attention to is how to take the technologies we have developed and to scale them up to continue to make a difference in the lives of the poor in developing countries."

Provided by Purdue University